College of Engineering, Construction and Living Sciences
Bachelor of Information Technology
ID721001: Mobile Application Development
Level 7, Credits 15

Project: Travelling Application

Assessment Overview

In this **individual** assessment, you will develop & publish a travelling application using **Kotlin** in **Android Studio** & **Google Play Store**. **Android** topics such as **ViewModel**, **LiveData**, **Room Database** & **Google Map** were formally covered in the teaching sessions. The main purpose of this assessment is not just to build a mobile application, rather to demonstrate your ability to effectively implement intermediate/advanced **Android** features & other application development topics. In addition, marks will be allocated for code elegance, documentation & **Git/GitHub** usage.

The travelling application will help you sound like a local & adapt to a new culture. You will begin by selecting a country you wish to travel to. For example, if you wish to travel to Italy, you would be provided with all the necessary tools such as text translation & text to speech support, a selection of well-known Italian phrases & a map containing locations of Italy's top-rated tourist attractions. A user of your travelling application **must** be able to select from at least **six** countries with at least **one** country per continent **excluding** Antarctica.

Learning Outcomes

At the successful completion of this course, learners will be able to:

1. Implement & publish complete, non-trivial, industry-standard mobile applications following sound architectural & code-quality standards.
2. Identify relevant use cases for a mobile computing scenario & incorporate them into an effective user experience design.
3. Follow industry standard software engineering practice in the design of mobile applications.

Assessments

Assessment	Weight	Due Date	Learning Outcomes
Project: Travelling Application	60%	28-10-2022 (Friday at 4.59 PM)	1, 2, 3
Practical: Problem-Solving	20%	26-08-2022 (Friday at 4.59 PM)	3
Presentation: Advanced Android Topic	20%	16-11-2022 (Wednesday at 4.59 PM)	2, 3

Conditions of Assessment

You will complete this assessment during your learner-managed time. However, there will be time during class to discuss the requirements & your progress on this assessment. This assessment will need to be completed by **Friday, 28 October 2022** at **4.59 PM**.

Pass Criteria

This assessment is criterion-referenced (CRA) with a cumulative pass mark of **50%** over all assessments in **ID721001: Mobile Application Development**.

Authenticity

All parts of your submitted assessment **must** be completely your work. If you use code snippets from **GitHub**, **StackOverflow** or other online resources, you **must** reference it appropriately using **APA 7th edition**. Provide your references in the **README.md** file in your repository. Failure to do this will result in a mark of **zero** for this assessment.

Policy on Submissions, Extensions, Resubmissions & Resits

The school's process concerning submissions, extensions, resubmissions & resits complies with **Otago Polytechnic** policies. Learners can view policies on the **Otago Polytechnic** website located at https://www.op.ac.nz/about-us/governance-and-management/policies.

Submission

You **must** submit all project files via **GitHub Classroom**. Here is the URL to the repository you will use for your submission – https://classroom.github.com/a/IIlgqZV5. Create a **.gitignore** & add the ignored files in this resource - https://raw.githubusercontent.com/github/gitignore/main/Android.gitignore. The latest project files in the **master** or **main** branch will be used to mark against the **Functionality** criterion. Please test before you submit. Partial marks **will not** be given for incomplete functionality. Late submissions will incur a **10% penalty per day**, rolling over at **5:00 PM**.

Extensions

Familiarise yourself with the assessment due date. If you need an extension, contact the course lecturer before the due date. If you require more than a week's extension, a medical certificate or support letter from your manager may be needed.

Resubmissions

Learners may be requested to resubmit an assessment following a rework of part/s of the original assessment. Resubmissions are to be completed within a negotiable short time frame & usually **must** be completed within

the timing of the course to which the assessment relates. Resubmissions will be available to learners who have made a genuine attempt at the first assessment opportunity & achieved a **D grade (40-49%)**. The maximum grade awarded for resubmission will be **C-**.

Resits

Resits & reassessments **are not** applicable in **ID721001: Mobile Application Development**.

Instructions

You will need to submit an application & documentation that meet the following requirements:

Functionality - Learning Outcomes 1, 2, 3 (40%)

- Application **must** open without file structure modification in **Android Studio**.
- Application **must** run without code modification on a mobile device.
- Application **must** run on **API 28: Android 9.0 (Pie)**.
- All country data must be fetched using **Retrofit** from a **GitHub Gist**. You have been provided an example called **data.json** in the **course materials repository** > **assessments**.
- Display the list of countries in a **RecyclerView**. Each item needs to have the country's name & flag.
- **Independent Research:** Text translation support. If a country is multilingual (use of more than one language), choose one language. For example, Canada's main languages are English & French. You would choose either English or French.
  - Use **Retrofit** & the **Yandex Translate API** to translate text from one language to another. To use the **Yandex Translate API**, you will need an **API key**. A key will be privately given to you on **Microsoft Teams**.
  - Display some feedback while the text is being translated.
  - Handle incorrectly formatted input fields. For example, an **EditText** is blank or empty.
- **Independent Research:** Text to speech support.
  - Handle incorrectly formatted input fields. For example, an **EditText** is blank or empty, or the country is not supported.
- **Independent Research:** Selection of two well-known phrases. For example, "No worries, mate, she'll be right" is well-known phrase in Australia.
- **Independent Research:** Register a new user on **Firebase**.
- Log into the application with an **email** & **password** using **Firebase**.
- **Independent Research:** Logout of the application. The user **should** be navigated to the login screen.
- **Switch** which toggles between light & dark mode.
  - The state (true or false) value of the **Switch must** be stored in a **DataStore**.
  - The mode will be based off the state value of the **Switch**. For example, true equals dark mode & false equals light mode.
  - The mode must be persistent across **all** screens, i.e., if a user kills & starts the application, the mode will be retrieved from a **DataStore**.
- **Independent Research: Google Map** displaying top-rated tourist attractions.

  - Display two tourist attractions per continent.
  - Each data object will represent a marker.
  - The marker's information window **must** display the attraction's name & city/town.
  - If dark mode, set the map's style to a dark theme. If not, set the map's style to light theme.
    * **Resource:** https://mapstyle.withgoogle.com
  - To use **Google Map**, you will need an **API key**. A key will be privately given to you on **Microsoft Teams**.

- Splash screen using a **Lottie** animation.
- Like & favourite a country. Store the user's **id**, country's **id** & **type**, i.e., like or favourite in a **Room Database** table.
- **Independent Research:** Adaptive launcher icon which is displayed in a variety of shapes. The icon **must** be the same as the **Lottie** animation icon.
- Visually attractive UI with a coherent graphical theme & style using **Material Design**.
- Application is published to **Google Play Store**.
  - To published to **Google Play Store**, you will need a **Google Play Console** account. The account's credentials will be privately given to you on **Microsoft Teams**. **Do not** disable any applications published on this account.
  - When you create your application, name the package appropriately. For example, **op.mobile.app.dev.<username>.travelling**. **Note:** replace **username** with your **Otago Polytechnic** username.

Code Elegance - Learning Outcomes 1, 3 (45%)

- **Kotlin** & **XML** files contain no magic numbers/strings. Store the values in the appropriate **XML** files. For example, numbers **must** be stored in an **integer.xml** or a **dimens.xml** file & strings **must** be stored in a **strings.xml**.
- Idiomatic use of control flow, data structures & in-built functions.
- Code adheres to **DRY**, **KISS** & the **Model-View-ViewModel** architectural pattern.
- Adhere to an **OO** architecture. For example, classes, functions, concise naming & functions assigned to the correct classes.
- Efficient algorithmic approach.
- Commented code is documented using **KDoc**. The purpose of each class and function **must** be explained.
- API keys are stored & retrieved from **local.properties**.
- **Kotlin** & **XML** files are code formatted.
- No unused code & resources.

Documentation & Git/GitHub Usage - Learning Outcomes 2, 3 (15%)

- Provide the following in your repository **README.md** file:
  - URL to your application's privacy policy.
  - URL to commented code generated to **Markdown** using **Dokka**.
  - URL to your application on **Google Play Store**.
- Commit at least **20** times per week.
- Commit messages **must** reflect the context of each functional requirement change & formatted using the naming conventions dicussed in **Week 1**.

Additional Information

- **Do not** rewrite your **Git** history. It is important that the course lecturer can see how you worked on your assessment over time.